

# STRENGTH TRAINING 101

**Based on the American  
College of Sports Medicine  
Position Stand**

The Art and Science of Picking  
Things Up and Putting Them  
Down-MAJ V.McNulty,  
USACHPPM

# STRENGTH TRAINING

There are many benefits to strength training that vary widely from the physiological to psychological. However, the main reason most people begin strength training (also called resistance training) is to improve sport specific or occupational performance.



# STRENGTH TRAINING 101

Because the body will accommodate and adapt to loads placed on it, progressive resistance programs are required to stimulate further musculo-skeletal adaptations. “Progressive” implies a gradual and consistent increase in weight to further challenge the body. The body responds by increasing muscle size and strength.



# STRENGTH TRAINING 101

## What is Progressive Resistance?

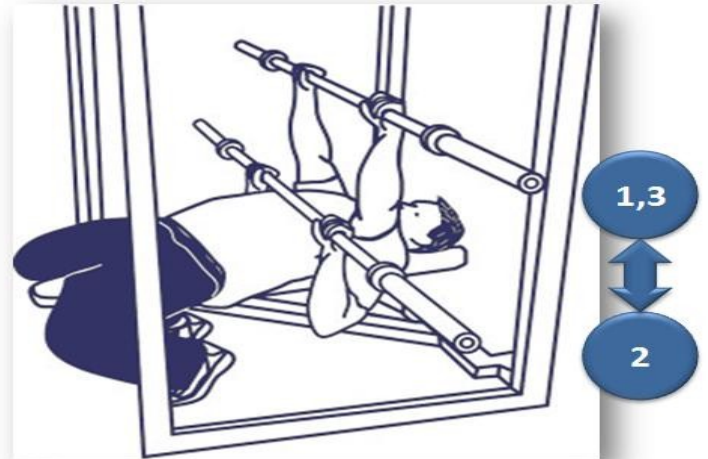
Progressive resistance is a systematic and gradual increase of weight (also referred to as “intensity”) as the body begins to adapt to the loads placed upon it. A good rule of thumb is to increase weight 2-10% when you can lift 1-2 reps over the desired number.

This concept is not new, in fact, it is actually thousands of years old. The greek fable “Milo and the Bull” celebrates a storied athlete whose great strength was attributed to receiving a bull calf as a youngster that he would hoist on his back daily to check its weight. As the bull calf grew, so did Milo’s strength.

# STRENGTH TRAINING 101

The optimal characteristics of strength programs include the use of concentric (lifting), eccentric (lowering), and isometric (holding) muscle actions.

The example illustrates the “lowering” or eccentric phase and the “lifting” or concentric phase.



Generally, lifting speed should be 1-2 seconds for each phase.

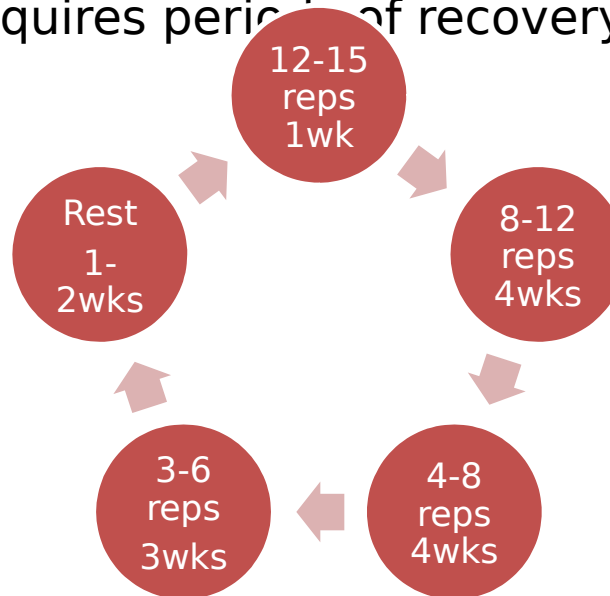
# STRENGTH TRAINING 101

## What is Periodization?

Periodization is an approach to resistance training that includes systematic alternating cycles of weight lifted (intensity) with total repetitions or volume (repetitions x sets). This is done to allow the body to recover from high intensity training sessions. Coaches discovered years ago that a good periodization routine reduced overtraining and improved performance. The body cannot be trained hard continually, it requires periods of recovery.

For  
example:

In this case all sets completed would be within a certain rep range until peak intensity is reached.

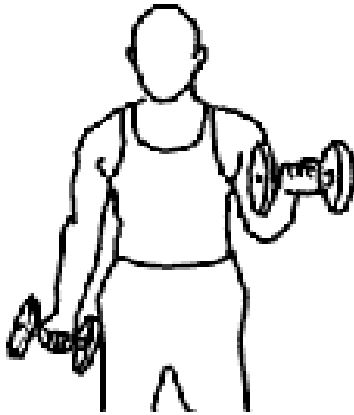


This is a simple example of the concept of periodization.

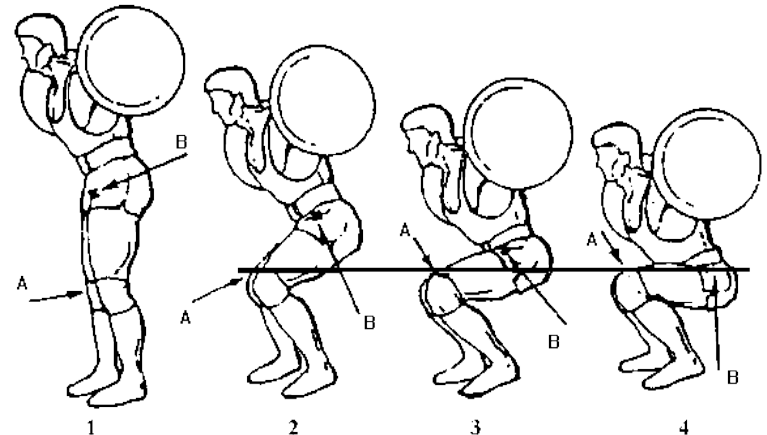
# STRENGTH TRAINING 101

Exercises can be unilateral, bilateral, or multi-joint.  
Multi-joint exercises typically build greater strength.

The  
biceps  
curl is a  
single  
joint lift:



The squat  
is a multi-  
joint lift :



It is recommended that  
strength programs perform  
multi-joint exercises first  
and large muscle groups  
worked before smaller.



# STRENGTH TRAINING 101

## Training Frequency

HOW OFTEN SHOULD I STRENGTH TRAIN??

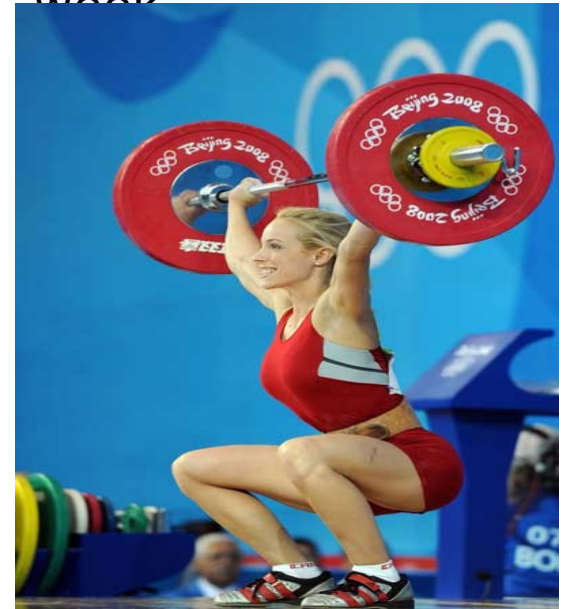
Beginner: 2-3 days a week



Intermediate: 3-4 days a week



Advanced: 4-5 days a week





# SETS? REPS?

Individual exercises are performed according to an organized system of sets of repetitions. If you perform 10 repetitions of the bench press then stop for a rest you would have “one set” completed. Multiple sets of between 3 to 5 are generally completed per exercise.

A rest period of 1-2 minutes should follow a set to allow recovery for the next. However a high intensity set may require 3-5 minutes.

For  
example:

Day1	sets x reps
Chest:	
Bench press	3x10
Dumbbell flies	3x12
Back:	
Pull-ups	2x6
Low pulley rows	4x8

It's sometimes difficult to remember what exercises were done and how many sets and repetitions were performed, this system makes it easy to remember and repeat daily or weekly sessions

# SETS? REPS?

For those new to resistance training, keep the repetition ranges between 8-12. This keeps loads relatively lighter and allows for proper movement technique to be learned.



Intermediate (at least 6 months) to advanced lifters (years) should begin to use a wider loading range of 1-12 repetitions with eventual emphasis on heavy loading of 1-6 repetitions.

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## REPETITIONS

	# of reps	Primary Objective
<b>Heavy</b>	1-6	Strength and Muscle Size
<b>Medium</b>	7-12	Muscle Size and Strength
<b>Light</b>	13+	Endurance with Less Capacity for Strength or Muscle Size

\*In general, the lower the reps, the greater muscle and strength building potential. Lower reps imply greater loads.

# STRENGTH TRAINING 101

## What is Power Training?

Power training is purposefully moving a resistance at high velocity. The less time it takes to move the resistance, the greater the power. Since heavy loads cannot be moved as quickly, lighter weights (30-60% of your one rep max) are used. Any exercise can be turned into a power exercise however multi-joint exercises that involve the lower body are typically used.

For  
Examp  
le:

Power Clean



Kettlebell  
toss



Strongman Keg  
toss



# STRENGTH TRAINING 101- GOALS

The type of weight training you do will depend on your goals.

For instance:



A NBA basketball player would be more concerned about improving their power and speed than with lifting maximum poundage from the floor as a champion deadlifter would.



# STRENGTH TRAINING 101

## SIMPLE WORKOUT ROUTINE

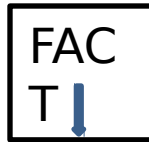
Monday	Wednesday	Friday
Bench Press 4x6-10	Barbell Squats 4x8-10	Deadlifts 4x6-10
Dips 4x 8-12	Hamstring Curls 3x8-12	Pull-ups 3x6-8
Low Pulley Rows 4x8-12	Shoulder Laterals 4x8-12	Triceps Pushdowns 4x6-10
Abdominals 3x15-20	Abdominals 3x15-20	Abdominals 3x15-20

\*This is a realistic, easy to follow, but challenging intermediate routine that can be completed at any gym and should only take about an hour per session.



# STRENGTH TRAINING MYTH

MEN: I can  
look like this if I  
lift weights!:



Most physiques you see in the media are genetically gifted athletes that live and breathe the sport of bodybuilding for years as well as take varying levels of anabolic drugs. Most of us cannot remotely look like them even if we wanted to, so don't worry about it.

WOMEN: I don't  
want to look like  
this if I lift





# STRENGTH TRAINING 101

## SUMMARY

- Resistance training can be performed 2-5 days a week, depending on experience.
- 3-5 sets per exercise should be used probably no more than 2 exercises per body-part.
- Lower repetitions with higher weight build greater strength and muscle size. Higher repetitions and lower weight build more muscular endurance. Power training involves moving lighter weight at higher speeds. Movements should be learned with higher reps.
  - How you use weight, reps, and speed depends on goals.
- A resistance training program should periodize through cycles of relatively harder and easier phases to allow for rest and recovery.

# STRENGTH TRAINING 101

## USEFUL AND FREE RESOURCES

[www.tmuscle.com](http://www.tmuscle.com)

Commercial site with great resources for bodybuilding and strength athletes. Not for government computer viewing.

<http://www.nsca-lift.org>

National Strength and Conditioning Association

<http://www.acsm.org>

American College of Sports Medicine